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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/561,349

12/19/2005

Nicholas James Parkinson

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11/14/2008

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EXAMINER

LE, QUANG V

ART UNIT

PAPER NUMBER

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/561,349	Applicant(s) PARKINSON ET AL.	
	Examiner QUANG V. LE	Art Unit 2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is in response to the application 11/561,349 filed on 12/19/2005.
2. **Claims 1-11** have been examined and are pending.

Information Disclosure Statement

3. An initialed and dated copy of Applicant's IDS form 1449 is attached to the instant office action.

Priority

4. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 1-3 and 5-8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawaziri et al., US Patent No. 5,929,784, further in view of Vock et al., US Patent no. 5,798,519.

As per claim 1, Kawaziri teaches an image processing system including a plurality of linear arrays of detectors imaged onto a scene of interest and an image store for receiving signals from the linear array when a detected object passes through the scene (col 2, line 57-62);

wherein the plurality of linear arrays of detectors are spaced substantially parallel to one another to image a plurality of areas of interest in a scene (col 4, line 54-59 and figure 1); and

Kawaziri fails to teach the system further comprises a signal processor for detecting images received by the plurality of arrays and determining direction and speed of movement detected.

However, in an analogous art, Vock teaches a camera with a plurality of detector elements forming an array (col 2, line 26-28) and a processor (figure 13) are used to determine the direction (col 25, line 5-7) and the speed of a golf ball (col 20, line 32-35).

Therefore, to one of ordinary skill in the art, it would have been an obvious matter of design choice at the time of the invention was made to incorporate Vock's speed and direction calculation into Kawaziri image processing system so as to provide an object detection system that not only recognizes the object, but it can also track the speed and direction of the object. Such system can be implemented in automobile surveillance system.

Regarding claim 2, Kawaziri and Vock teach the system of claim 1, Vock further teaches the detectors are infra red detectors (col 2, line 51).

Regarding claim 3, Kawaziri and Vock teach the system of claim 1, Vock further teaches wherein the detectors are visible light sensitive detectors (col 2, line 26-28).

Camera sensors have visible light sensitivity.

Regarding claim 5, Kawaziri and Vock teach the system of claim 1, Vock further teaches wherein each detector element in each linear array has associated therewith an independent noise limiting means (col 10, line 29-39).

Regarding claim 6, Kawaziri and Vock teach the system of claim 5, Vock further teaches wherein the noise limiting means at each detector element comprises an independent amplifier (col 17, line 31-35) and filter (col 18, line 22-23).

Regarding claim 7, Kawaziri and Vock teach the system of claim 1, Kawaziri further teaches wherein each detector array has its output read out sequentially from each detector element (col 5, line 6-11). *Official notice is taken that it is well known in the art that the readout of a detector array in a sensor system is always performed sequentially.*

Regarding claim 8, Kawaziri and Vock teach the system of claim 1, Kawaziri further teaches wherein the processor 7 is arranged to detected object range (distance) (col 5, line 24-26).

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6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawaziri in view of Vock as applied to claim 1 above, further in view of Salmon, US Patent No. 6,900,756.

Regarding claim 4, Kawaziri and Vock teaches the system of claim 1, but they fail to teach the detectors are mm wave sensitive detectors.

However, in an analogous art, Salmon teaches a detection system using mm wave detectors (col 14, line 45-49).

Therefore, to one of ordinary skill in the art, it would have been an obvious matter of design choice at the time of the invention was made to incorporate mm wave detector of Salmon into Kawaziri and Vock image processing system so as to provide a detector system that can penetrate certain material in order to detect the motion of object behind it. Such application is useful in automobile anti-collision system where the detectors have to detect moving objects through dense rain and fog.

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawaziri in view of Vock as applied to claim 1 above, further in view of Hirzel et al., Patent No. 4,671,650.

Regarding claim 9, Kawaziri and Vock teaches the system of claim 1, but they fail to teach the system including an additional two-dimensional detector array system which may be switched on when an object is detected.

However, in an analogous art, Hirzel teaches an apparatus for determining aircraft position and velocity where the array detectors are arranged in a two-dimensional array (col 5, line 12-16).

Therefore, to one of ordinary skill in the art, it would have been an obvious matter of design choice at the time of the invention was made to incorporate Hirzel two dimensional detector arrays into Kawaziri and Vock image processing system so as to provide a speed detection system that can measure ground velocity in two dimensions over a wide range of speeds and provide basic ground position data that can be used for a variety of aircraft ground navigational uses that require fast update times (col 4, line 11-16).

8. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawaziri in view of Vock as applied to claim 1 above, further in view of Zhdanov, US Patent No. 6,633,256.

Regarding claim 10, Kawaziri and Vock teaches the system of claim 1, but they fail to teach wherein several systems are combined into a single unit arranged to give about 360 degree of azimuthal coverage.

However, in an analogous art, Zhdanov teaches a method measuring coordinates of a target using two axis sensors that can cover a full 360 degree of azimuth angle (col 22, line 24-38).

Therefore, to one of ordinary skill in the art, it would have been an obvious matter of design choice at the time of the invention was made to incorporate Zhdanov's 360 degree of azimuth sensor method into Kawaziri and Vock image processing system so as to provide an object detection system that can detect 360 degree continuously without moving or reconfiguring the equipment. Such system would benefit the threat detection system where continuous 360 degree of coverage is critical.

9. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawaziri in view of Vock as applied to claim 1 above, further in view of Martin, US Patent No. 6,243,131.

Regarding claim 11, Kawaziri and Vock teaches the system of claim 1, but they fail to teach wherein outputs from the signal processor are communicated to remote monitoring stations.

However, in an analogous art, Martin teaches a method of using an array of sensor to capture an image of an object, and then send it to display on remote stations (col 6, line 34-37).

Therefore, to one of ordinary skill in the art, it would have been an obvious matter of design choice at the time of the invention was made to incorporate Martin method of communicating with remote stations into Kawaziri and Vock image processing system so as to provide a network of detection system that can communicate and share detection information. Such system will benefit large scale surveillance system.

Conclusion

10. The prior arts made of record and not relied upon are considered pertinent to applicant's disclosure:

Olszak, Artur G.	(US 20040223199 A1)	Holographic single axis illumination for multi-axis imaging system
Neumann, Gad	(US 20030133604 A1)	Method and system for fast on-line electro-optical detection of wafer defects
Mathews, Bruce Albert et al.	(US 20020149674 A1)	Electro-optical reconnaissance system with forward motion compensation
Hanson; Steen et al.	(US 7209291 B2)	Optical displacement sensor
Yoshimura; Kazunari et al.	(US 5416591 A)	Method of determination of a three-dimensional profile of an object
Watkins; Robert A.	(US 4193688 A)	Optical scanning system
Park, Michael C. et al.	(US 20020180759 A1)	Camera system with both a wide angle view and a high resolution view
Krasutsky; Nicholas	(US 7336345 B2)	LADAR system with SAL follower

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quang V. Le whose telephone number is (571) 270-5014. The examiner can normally be reached on Monday through Friday 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Yen Ngoc Vu can be reached 571-272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Quang Le/
Patent Examiner
Art Unit 2622

*/Ngoc-Yen T. VU/
Supervisory Patent Examiner, Art Unit 2622*